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the Emperor has made a gift of 1,000,000 yen for promoting the object of the institute. The total fund, supposing that the public subscription comes up to the expected sum, would thus amount to 8,000,000 yen, of which about 2,500,000 yen has to be invested in land, buildings and equipment. But since the interest accruing from the fund is calculated to exceed the annual expenditure for the first six or seven, or even more, years, when the activity of the institute can not of necessity be very great, it is expected that at the end of ten years there will be left over a fund of about 6,000,000 yen, which, calculated at 5 per cent. interest, would yield an annual income of 300,000 yen. To this extent, herefore, the institute would be self-supporting, and it is roughly estimated on this basis that the number of staffs of all grades and of mechanics, laboratory boys, etc., would be between 100 and 120 in all. But it is evident that the institute must grow in both size and activity, and that, therefore, the above income would soon be found to be inadequate to meet the necessary expenses demanded by this growth. As the institute grows in activity, however, its importance will be more and more evident, and it is believed that there would then be no great difficulty in obtaining more money.

#### THE DEPLETED HERDS OF ENGLAND, FRANCE AND ITALY

LARGER importations of meat and pork products from the United States, thus lessening the slaughtering of native animals, will be the most effective means of restoring the depleted animal herds of the United Kingdom, France and Italy. This is the information recently received from Dr. Vernon Kellogg, of the United States Food Administration, while in France on official business. Dr. Kellogg declares that the losses in cattle in France and Italy are especially serious, not only on account of the meat and milk ordinarily obtained from this source, but also on account of the loss of the services of cattle, through depletion, which are used as work animals on farms in both countries. He writes:

The most recent statistics on animal herds, indi-

cating the number now existing in allied countries, show a loss of cattle in France of 17 per cent.; in Italy of 14 per cent., with the United Kingdom showing no loss; sheep and goats, France, 41 per cent.; Italy, 1 per cent.; United Kingdom, 10 per cent.; pigs, France, 49 per cent.; Italy, 12.5 per cent.; United Kingdom, 25 per cent.; horses and mules, France, 37.5 per cent.; Italy, 25 per cent.; United Kingdom, not including animals not employed in agriculture, 4.5 per cent.

The losses in cattle in France and Italy are not only serious on account of the meat involved, but are especially serious on account of milk and also of work, as cattle are used largely in both countries as work animals on the farms. It is highly important that the herds be restored as rapidly as possible, which can be done most effectively by larger importations of meat and pork products from America to lessen the slaughtering of native animals.

The French and Belgian people now being released from formerly occupied territories are demanding and needing increased amounts of food over the former relief ration in order to restore health and strength so as to be able to work, thus making larger demands on imports from America.

I have now been in France three weeks, eating in restaurants and hotels of all grades, and I have had butter on the table once and a total of six lumps of sugar. Saccharine is universally used in coffee and tea. The smaller sugar ration is mostly reserved for cooking.

#### THE USE OF NITRATE DURING THE WAR

FACTS concerning the importation and use of nitrate during the war period, hitherto suppressed for military reasons, have been made public by C. H. MacDowell, director of the Chemicals Division of the War Industries Board.

In the fall of 1917 the Congress appropriated \$10,000,000 to be used by the Agricultural Department in importing nitrate of soda to be sold by them to the farmers at cost. This was later made a revolving fund. Under this the War Industries Board procured for the Department of Agriculture some 109,000 long tons of nitrate for shipment from Chile during the winter and spring. Owing to disturbed shipping conditions in the early spring, it was impossible to bring in for February-March arrival the tonnage expected, and with the

needs developed by the expected spring offensive of the Germans, it became necessary to divert to France a large tonnage of nitrate for manufacture of explosives in that country and for further increasing production of explosives in this country for use in France. This immediate need made it impossible for the Department of Agriculture to secure boats sufficient to bring in the full 109,000 tons so that 66,778 tons was actually imported in time for use by the farmers for spring planting.

Owing to military necessity, publicity could not, of course, be given to the reason of the non-arrival of the nitrate sold to the farmers, and this inability to deliver was the cause of considerable felling on the part of users of nitrate of soda. The military necessity was the greatest one and the planters who were unable to get the nitrate were in this way contributing to the supply of explosives in France, which later led to the winning of the war.

The nitrate of soda situation in the United States up until about the first of August was a serious one, although every explosive and chemical plant was kept supplied with sufficient nitrate to maintain full operations at all times. This was done by drawing from government arsenal reserves and by transferring stocks from fertilizer manufacturers and other holders to plants when stocks were about exhausted. Owing to the shortage of nitrate, it was deemed wise to ask the importer to discontinue sales of nitrate to fertilizer manufacturers other than for the making of sulphuric acid, and after the first of July all consignments of nitrate arriving in the country sold to such manufacturers were commandeered by the Ordnance Department and turned over to munitions and chemical manufacturers. These contracts thus handled were made between the importers and the fertilizer people in the fall of 1917.

Immediately on the signing of the armistice, all restrictions were taken off of the importers as far as sales of nitrate to fertilizer manufacturers and agricultural users was concerned, so that there will be no difficulty in supplying the entire needs of the United States for agricultural use for spring planting.

Nitrate of soda is the foundation of smokeless powder and high explosives as well as for other needed chemicals, and the purchase and importation of nitrate are conducted by government through the War Industries Board in cooperation with the importers formerly handling this material, the importers buying in Chile as in times past. The government received their nitrate through the importers at cost and the profit charged by the importers to private users was controlled by the government so that uniform cost to all users was secured, this cost being based on the average monthly cost in Chile, plus the freight storage, exchange, and other elements of cost.

A committee known as the Nitrate Committee of the United States was established with offices in New York and a New York representative of the War Industries Board represented that board in the offices of this committee. Government needs for nitrate were increasing rapidly and the 1919 requirements would have been very large. During the entire period of the war all needed nitrate was secured and there was no let up in the manufacture of war materials depending upon this article.

#### SCIENTIFIC NOTES AND NEWS

PROFESSOR WALLACE CLEMENT SABINE, professor of physics at Harvard University and formerly dean of the Lawrence Scientific School, died on January 10, aged fifty-one years.

DR. SIMON FLEXNER, director of the Laboratories of the Rockefeller Institute for Medical Research, has been elected a corresponding member of the Société des Hôpitaux de Paris, and has had the title of Officier de Légion d'Honneur conferred upon him by the French government.

THE American Phytological Society at its tenth annual meeting, held in Baltimore, December 23-28, elected the following officers: *President*, C. L. Shear, U. S. Department of Agriculture; *Vice-president*, I. E. Melhus, Iowa State College, Ames, Iowa; *Secretary-Treasurer*, Geo. R. Lyman, U. S. Department